ABSTRACT

D*ata on the number of people in the room is very useful for surveillance systems, data analysis and so on. To obtain this data, calculations are usually done by assigning someone to supervise a room. In this final project, a system of calculating the number of people that can be used in a room is designed, both for commercial applications and for security purposes. An approach that can be done is to model systems such as closed circuit television (CCTV) surveillance cameras with the addition of image processing technology.*

In this final project, a system for calculating the number of people in the room will be designed with image processing based on human detection. This system uses a Raspberry Pi device that already has an image processing process using the Haar-Cascade Classifier method. The input data is in the form of video taken directly through the webcam which will be captured into a frame so that it can be used as input for the Haar-Cascade Classifier method and performs the calculation process which will be sent to the Antares platform.

The system designed in this final project has been tested with several scenarios. So that the best system configuration is obtained using the minimum value of neighbor 5 and scale factor 1.1. The system can recognize up to 4 objects in the frame and obtain optimal results when the object is 6 meters away and the front facing position with an average accuracy of more than 70%. The system has an average computation time of less than one second, meaning that the detection process is pretty fast.

Keywords: *Image Processing*, *Haar-Cascade Classifier*, *Human Detection*